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BAIF

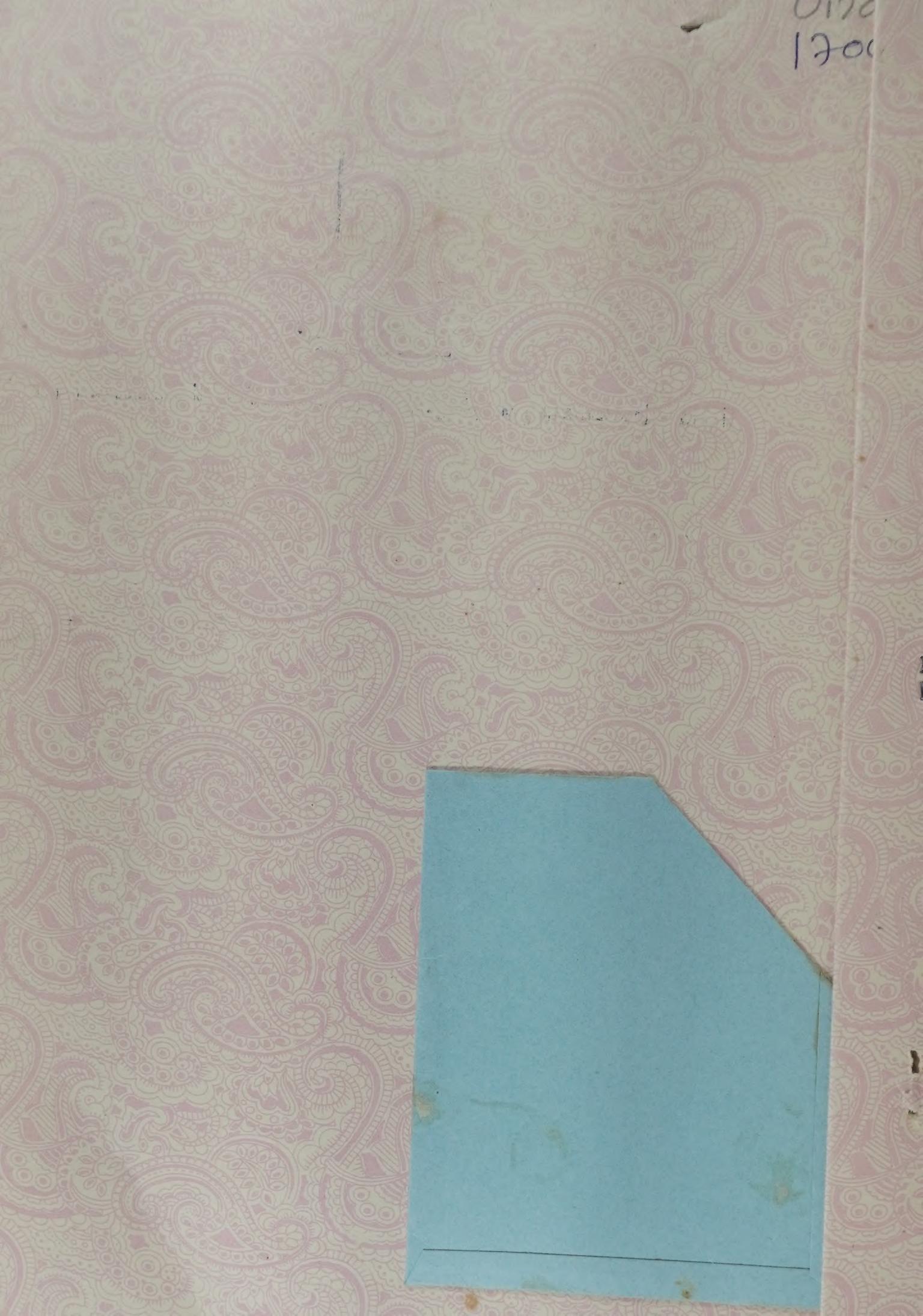
The Bharatiya Agro-Industries Foundation

THE BHARATIYA AGRO-INDUSTRIES FOUNDATION *

*Where Technology promotes prosperity for
the poor.

CENTRAL CAMPUS :- URULLI KANCHAN, DIST :- POONA.

1700



COMMUNITY HEALTH CELL

THE BHARATIYA AGRO-INDUSTRIES FOUNDATION*

*Where Technology Promotes Prosperity for
the Poor

DIRECTOR'S CELL COMMUNICATION NO. : 25

10TH JANUARY, 1978:

YTHUMMOO
RIEM V. BSA
elephant oil
ASUSO-elephant
oil oil

RECEIVED
DEPARTMENT OF DEFENSE
A-700
ICB-A-700

COMMUNITY HEALTH CED
826, V Main, 1 Block
Koramangala
Bengaluru-560034
India

THE BHARATIYA AGRO-INDUSTRIES FOUNDATION

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Dist: Poona,
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BRIAH : BRIAHNAGAR,
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INDEX

<u>TITLE</u>	<u>PAGE NO.</u>
URULI-KANCHAN, THE MAHATMA & THE BAIF 3
ESTABLISHMENT OF BAIF 4
NATURE OF BAIF'S PROGRAMME	.... 4
CATTLE DEVELOPMENT DIVISION OF BAIF AS A TOOL TO SOCIO-ECONOMIC DEVELOPMENT	.... 8
STRATEGY OF EXOTIC DAIRY CATTLE MANAGEMENT	.... 8
ACTIVITIES OF BAIF	.... 9
BAIF RESEARCH INSTITUTE FOR CATTLE AND AGRICULTURAL DEVELOPMENT - BRICAD	.... 11
BULL MOTHER FARM	.... 11
BULL STATION	.... 12
GENETICS SECTION	.... 12
SEmen FREEZING LABORATORY & SEMEN BANK	.... 13
LIQUID NITROGEN PLANT	.... 13
NUTRITION SECTION	.... 14
DISEASE INVESTIGATION LABORATORY	.... 14
AGRICULTURE AND DAIRY. FARM	.... 15
AGRICULTURAL ENGINEERING, TRACTORS & UTILITIES	.... 15
BAIF'S RESEARCH INSTITUTE FOR TRAINING IN ECONOMIC MILK PRODUCTION	.... 15
BAIF RESEARCH INSTITUTE FOR ANIMAL HEALTH- INTRODUCTION - BRIAH	.... 18
OBJECTIVE OF BRIAH	.... 18
LOCATION OF BRIAH	.... 19
BRIAHNAGAR - A BABY BECOMING BIG	.... 19
MENACE OF FOOT & MOUTH DISEASE	.... 21

FMD VACCINE PROJECT - BRIAH	....	22
INFRA-STRUCTURAL FACILITIES AT BRIAH	....	22
FMD VACCINE RESEARCH & PRODUCTION LABS.....	....	24
EPIDEMIOLOGICAL SURVEILLANCE LABS.	....	25
CELL CULTURE LABORATORIES	....	25
VIRUS LABORATORIES	....	26
BIOCHEMISTRY LABORATORY	....	26
BATTERY OF FERMENTORS	....	26
RESEARCH & DEVELOPMENT LABORATORY	....	27
THE MANPOWER MANAGEMENT	....	27
A PHILANTHROPIST'S VIEW ABOUT BAIF.	....	29
DR. MANIBHAI DESAI ON BAIF'S STRATEGY OF SERVICE TO THE POOR FARMER THROUGH THE DEVELOPMENT OF CATTLE, AGRICULTURE AND IRRIGATION	....	31
MAN-POWER SKILLS INVENTORY	....	33
SENIOR MANAGEMENT TEAM	....	34

URULI-KANCHAN - THE MAHATMA AND THE BAIF

As the special train from Delhi steamed in, Uruli-Kanchan, jumped in excitement.

A young diplomat announced that the Viceroy of India wanted Mahatma Gandhi immediately in Delhi for crucial talks on transfer of power. He politely requested that Mahatma Gandhi should leave for Delhi within half an hour.

Looking at the expectant faces of his colleagues, the Mahatma serenly said "I can't come as you wish". My departure will be only in the evening as I am committed to attend to-day's evening prayer meeting with Uruli-Kanchanites. Many wondered and a few were confused. Turning to them, Mahatma Gandhi remarked "Remember, unless 'Unli-Kanchan' is 'made' Delhi cannot survive".

These few words were full of meaning, full of message and said volumes. Undoubtedly, BAIF took birth at that very moment.

Uruli-Kanchan of Mahatma is not a place, not a project but is an idea. An idea which is characterised by means of programmes consisting of several inter-dependent projects.

Uruli-Kanchan has become a legend where technology takes a different meaning - a means of promoting prosperity for the poor.

ESTABLISHMENT OF BAIFF :

The Bharatiya Agro-Industries Foundation (BAIF), Uruli-Kanchan, Dist: Poona, Maharashtra, was established in 1967 as a no-profit non-governmental, voluntary organisation. The organisation is registered under the Bombay Public Trust Act, 1950 and was inaugurated by the then President of India, late Dr. Zakir Hussain on 24th August 1967.

The Organisation is recognised by :

The Indian Council of Agricultural Research (ICAR), Krishi Bhavan, New Delhi.

Department of Science & Technology,
Ministry of Scientific Affairs,
Government of India, New Delhi.

Agriculture University (MPKV) Rahuri,
Maharashtra, (to which it is affiliated
for post-graduate Programmes).

The Revenue and Forests Department of
the Government of Maharashtra as an
Institution for doing Research in
Agriculture.

NATURE OF BAIFF'S PROGRAMME :

The nature of BAIFF's Programme cannot be comprehended unless one is aware of the values and principles upon which it is based and one understands the way in which these values provide sustained guidance for all involved in the programme, as these values and principles include the notion that :

the quality of working life has a direct bearing on the quality of life.

man is able and willing to learn

learning should be based on owning the learning experience and not on teaching for the sake of teaching.

you cannot do anything for people, at best you can do something with people temporarily, and in the end people have to do it themselves.

the basic social unit is bigger than one man, it comprises a group, a village a community, a co-operative, etc. Only in this way man will be able to relate to himself and to his environment in an active adaptive way.

the various resources, such as water, should be regarded as societal resources and cared for by means of trusteeship.

in the developmental work, i.e. working with others, the basis is joint involvement and shared responsibility. The general approach should, therefore, be one of participative design.

the whole is more than the sum of the parts. In other words, one should try to understand and to deal with complex total units as total units and not by means of segmentation or fragmentation which are basically forms of negative and maladaptive behaviours.

This means that in the programme one should use the integrated total system approach.

The various projects of the Uruli-Kanchan programme have the characteristics of socio-technical systems. The basic technologies are in the fields of

- cross breeding of cattle
- agriculture
- horticulture

These technologies can only be successful in practice if the following support or conditioning technologies are developed at the same time :

- irrigation and water management
- animal health care and a vaccination programme
- the creation of another local financial infra-structure, facilities for loans, etc.

In addition, there is an independent but linked educational technology in terms of a secondary and vocational training programme.

Furthermore, there are cross link technologies such as using the waste of sugar industries as cattle feed.

diffusion strategy for creating historical discontinuity by means of a participative design from within the existing social structures. The latter seems to us of crucial importance for the sustained improvement of the socio-economic status of the rural population.

CATTLE DEVELOPMENT DIVISION

CATTLE DEVELOPMENT DIVISION OF BAIF
AS A TOOL TO SOCIO-ECONOMIC DEVELOPMENT :

The BAIF seeks to work for total integrated Development of Socio-Economically weaker section by applying Research and Extension methods in the areas of Agriculture, Horticulture, Dairy Husbandry, Animal Sciences and other agro-based vocations.

The broader objectives of this programme can be achieved if a local, non-descript cow is inseminated with semen of proven sires, the cross-bred progeny yielding higher milk. This can prove to be an efficient tool to mitigate hardships of the rural population at large. BAIF has, therefore, undertaken a massive cross breeding programme and would be covering one million cows in the next five years.

STRATEGY OF EXOTIC DAIRY CATTLE MANAGEMENT : ✓ : Seen

The cardinal principles of Exotic Dairy Cattle Management are :

Perspective plan of exotic cattle breeding programme through established principles of progeny testing.

Designing of efficient, minimum cost, cattle feed through innovative approached in dairy farming - particularly - fodder crop cultivation strategies, which can thrive on poor soils with scanty water input.

Animal Health Management through Preventive Vaccination and mass serological diagnostic programmes for epidemiological surveillance.

BAIF has established facilities for progeny testing and dairy farming at the Central Research Station, Uruli-kanchan and for Veterinary Preventive Medicine

at the BAIF's Research Institute of Animal Health (BRIAH) at Wagholi near Poona.

The activities of BAIF are divided into four groups as detailed below :

The BAIF Research Institute for Cattle and Agricultural Development (BRICAD) consisting of Central Research Station, Uruli-kanchan.

Cattle Development Programme under 'A Million Cow Project.'

The BAIF Research Institute of Animal Health (BRIAH) Briahnagar, off Wagholi, Near Poona.

Rural Development Programme.

THE BAIF RESEARCH INSTITUTE FOR CATTLE AND
AGRICULTURAL DEVELOPMENT- BRICAD

THE BAIF RESEARCH INSTITUTE FOR CATTLE AND
AGRICULTURAL DEVELOPMENT - BRICAD

Started in 1971 with 100 acres of land gifted by the Government of Maharashtra, the main campus of the BAIF is now spread over 300 acres.

Once a barren, dry, uneven and neglected land is now full of shady trees and of lush green farms, one of the best demonstration of effective application of science and technology.

The BAIF Research Institute for Cattle and Agricultural Development (BRICAD), consists of the Central Research Station at Uruli-kanchan and includes the following sections :

Bull Mother Farm
Bull Station
Genetics Section
Semen Freezing Laboratory
&
Semen Bank
Liquid Nitrogen Plant
Nutrition Laboratory
Disease Investigation Laboratory
Agriculture & Dairy Farm
Agricultural Engineering,
Tractors & Utilities
BAIF's Research Institute for
Training in economic milk production.

BULL MOTHER FARM :

The main objective of maintaining the Bull Mother Farm is to maintain and propagate pure bred cattle of exotic breeds - like Jersey and Holstein - to form a nucleus herd for producing Breeding Bulls of these breeds. The breeding of this herd is being carried out in such a way that the production potential and the type confirmation of animals are constantly improved and bulls of high merit are produced.

12-00
A-100
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Koramangala
Banashankari

The Farm at present has a total strength of 726 cattle comprising of 259 cows, 113 heifers, 239 male calves. Peak milk yield of 50.2 k.g. in Holstein and 36.5 k.g. in Jersey and highest '305 days lactation' yields of 7426 kgs. and 5332 kgs. in these two breeds respectively compares favourably with the performance of their counterparts in Denmark.

A remarkable feat in adaptation of exotic cattle breeds to the Indian condition.

BULL STATION :

The important consideration in cross-breeding is to improve the performance of cows generation after generation. Qualities in respect of milk production and reproductivity are inherited, one must obtain, therefore, a large number of progeny from a bull which has the prepotency to transmit these characteristics to the progeny. Such bulls can only be identified or 'selected' by critically assessing the actual performance of the progeny of different bulls and selecting those whose daughters possess the desired qualities. The desired qualities not only include high milk yield but factors like adaptability to Indian agro-climatic conditions and resistance to diseases. Imp.

The Bull Station established with this objective is unique of its kind in the country. 120 bulls can be accommodated in specially designed individual paddocks. Intensive care is taken with regard to their management, feeding, health status, reproductive efficiency, pedigree, confirmation, type and other character such as feed conversion efficiency. The station has supplied more than 120 bulls to other States in the last three years, commendable performance indeed!

GENETICS SECTION :

Genetics Section deals with Planning of performance testing programme and implementation as well as evaluation of breeding plans.

BAIF is aware that the success of a programme of cross-breeding, which produces cross-breds having a combination of characters for high and efficient milk production of the exotic breeds and disease resistance and heat tolerance of the Indian breeds, ultimately depends on the availability of semen of the best progeny tested sires of exotic and cross bred dairy breeds. The requirement of pure exotic cattle semen so far has been mainly met through imports from overseas countries.

Total dependence on imported semen is fraught with many dangers. It would indeed be a paradox if India, with the largest cattle population in the world, has to depend on benevolence of foreign donors for its requirements of semen or meet these requirements through imports involving utilisation of precious and scarce foreign exchange.

SEMEN FREEZING LABORATORY & SEMEN BANK : ✓

Established in 1975 and provided with latest equipment for evaluation and processing and storage of frozen semen, this laboratory hold a place of pride in the country for its functionality, streamlined equipment and high international standards of semen quality control.

More than one million straws of top class quality semen have been processed by the laboratory during the last three years and remains in best quality under silvery clouds of liquid nitrogen.

Besides this activity the section undertakes applied research on processing of semen of various breeds and quality control standards effect of various factors on these aspects.

LIQUID NITROGEN PLANT : ✓

The Liquid Nitrogen Plant ensures adequate and timely supply of Liquid Nitrogen. In spite of sophisticated plant design and complexities involved in running such a plant, BAIF has successfully trained local personnel in the plant management. The experience is becoming of vital importance for establishing similar plants in strategic areas of cattle development.

NUTRITION SECTION :

This section was established realising need to advise farmers on proper and economic feeding of dairy animals, to get maximum profits from cross-breds. The section makes out recommendation on feeding in form of notes as well as ready reckoners, suggesting a variety of combinations of feeds from which he can choose according to available feeds and fodder. Adequate facilities have been created to enable analysis of feed and fodder, to assess their quality, to analyse soil, to advise use of fertilizers and selection of crops, to analyse blood, milk, tissues etc. to detect deficiency, if any.

This section is engaged in applied research mainly aimed at finding out ways of reducing cost of feeding dairy animals, through studies on utilisation of by-products like sugarcane, jowar etc. Studies undertaken on treatment of sugarcane bagasse, jowar straw etc. indicate possibilities of improving their nutritional value and preparing a low cost feed. Project on development of milk replacer is another field of interest.

DISEASE INVESTIGATION LABORATORY :

The main object of this section is to investigate the disease problems that may arise in exotic and cross-bred animals, make available immediately diagnosis based on laboratory examinations and advise and initiate prevention, control and therapeutic measures.

The Disease Investigation Laboratory is also providing health coverage to the animals at different extension, centres by advising timely use of immuno-prophylactic biologicals.

AGRICULTURE & DAIRY FARM : ✓

This is primarily concerned with fodder production and development. Presently, more than 70 hectares of land has been developed for regular cultivation and another 50 hectares is being developed involving considerable efforts in the form of levelling, training, soil treatment, manuring and selection of proper type of crops.

Cropping is decided in such a manner that a combination of cereal and leguminous crops is available throughout the year. Studies on newly evolved varieties of fodder crops and of drought resistant crops are also regularly taken up. Cultivation trials and nutritional evaluation studies indicate that two leguminous crops Leucaena-leucocephala (Ku-babul) and Desmanthus vergatus (Hedge - Lucerne) are rich in protein and can be grown in saline and rocky soils with scanty water availability. A great promise for the poor and land-less farmer indeed!

AGRICULTURAL ENGINEERING, TRACTORS & UTILITIES :

One of the activities for higher agricultural production is the optional mechanisation, particularly through tractors and other equipments. More than 20 Tractors are functional at BAIF's Farm and the services of the same are available to the farmers at concessional rates. This activity has given a great boost to the mechanisation in agriculture and the farmers now are conversant with the idea of community approach towards utilisation of Tractors.

BAIF'S RESEARCH INSTITUTE FOR TRAINING IN ECONOMIC MILK PRODUCTION :

The Foundation has designed in campus training programme for different academic levels. In designing these programmes, the Foundation has also borne in mind:

Need to attract the best talents.

Failings of graduates, presently passing out of the Universities.

Need to carry out transformation process effectively so as to make the graduates job oriented.

Need for a rapport between our educational Institutes and other organisations for our exchange of ideas, requirements, job-orientation and prospective job demands.

With these programmes, an effort is made to shift the preference of education from academic pursuits to need based technological and scientific learnings of immediate applied value, thereby the 'educated' person passing these training courses must possess the capacity to convert his knowledge to solve practical problems, generating wealth for the benefit of the community at large.

The Foundation established, therefore, the BAIF's Research Institute for training in Economic Milk Production and functioning optimally since 1975-76. More than fifty veterinary and agricultural graduates have received skills oriented training in the institute and more than 200 farmers took advantage of the facilities.

BALF RESEARCH INSTITUTE FOR ANIMAL HEALTH

INTRODUCTION - BRIAH :

The establishment of Imperial Veterinary Research Laboratories in Poona as early as in 1880 is an eloquent example of the importance of Veterinary Preventive Medicines.

Control of RINDERPEST was of great urgency as literally hundreds of cattle were dying of this epizotic. Herculean efforts, gave to the veterinary world in India goat adopted, lapinized and finally tissue culture rinderpest vaccine. A national eradication programme to control rinderpest could, however, be taken up after more than 50 years of hard work but since 1960, the incidence of this condition dramatically declined.

During the intervening period, a number of important discoveries changed the concepts of veterinary medicines and vaccines against fatal diseases such as Hamorrhagic Septicaemic, Black Quarter, Anthrax in cattle and new castle disease in poultry became easily available.

The golden era of Veterinary Preventive Medicines, however, started stagnating as more and more challenges came forward in the form of disease like Foot & Mouth Disease, Theileriosis in cattle and Marek's Disease in poultry. The problem of Brucellosis and Tuberculosis still evaded solutions.

The danger of new emerging diseases was also lurking. Diseases like British Mucosal Disease and Infection Rhino Trachitis, attracting increasing attention all the world over - particularly in Europe and United States, need a special mention.

Reports of emergence of new type of Foot & Mouth Virus and consequent failure of immunity in Israel, Turkey, Greece and other European and Middle East countries, and devastating out-break in United Kingdom showed convincingly that the battle against livestock diseases will have to continue, in fact, with more determination and vigour.

OBJECTIVE OF BRIAH :

It was only after a very careful consideration of above

facts that BAIF decided to establish an exclusive Animal Health Division (BRIAH) with a unique bio-engineering complex at Wagholi with the sole objective of evolving agents to combat successfully diseases of cattle and other animals and to devise intelligent strategies to outwit the microbes and viruses responsible for disease menace of livestock and dairy cattle. A team of 50 highly qualified scientists are working with utmost devotion to tackle the above problems as they know that at BAIF, technology is a means of promoting prosperity.

LOCATION OF BRIAH:

BAIF's Research Institute of Animal Health (BRIAH) is located at - what is fondly call it - BRIAHNAGAR, off Wagholi - the first tiny village after Poona on Poona-Ahmednagar Road at a distance of 14 km..

BRIAHNAGAR - A BABY BECOMING BIG:

Away from the hustle-bustle and pollution of big city, the complex is fast coming up in an exclusive area of 266 acres. Not long before, the expanse had an arid look with big stone boulders raising their grey heads over brown dry light soil.

The touch of human hands is evident in the form of lush green agricultural fields, orchards, afforestation plants with silvery water lines playfully rumbling through fields.

Very soon, BRIAHNAGAR will take a place of pride in the important bio-engineering projects' map of India and neighbouring countries.

MENACE OF FOOT & MOUTH DISEASE

MENACE OF FOOT AND MOUTH DISEASE:

One of the major diseases of cattle is the Foot & Mouth Disease. On an average, about 5,000 outbreaks of this condition affecting 3,00,000 animals are recorded every year in the country. As the disease manifests with greater severity in pure and cross-bred cattle, control of this disease has assumed a greater importance in the context of the massive cross breeding programme.

The disease, in exotic cattle particularly in young stock runs a severe course and mortality in unvaccinated calves had been found to be as high as 66%. Economic losses in absence of vaccination will be colossal. Therefore, as a good vaccine against Foot & Mouth Disease is not available in the country, the Foundation has decided to undertake the manufacture of Foot & Mouth Disease Vaccine on Industrial Scale as one of its top priority.

The technology of production of vaccine involves installation of a sophisticated bio-engineering complex. The main production includes growth of Baby-Hamster Kidney Cells in 'Suspension Cell Culture' using fermentors specially designed for this purpose. The strain of the virus of Foot & Mouth Disease properly identified and typed is then grown in such a cell system. The virus protein obtained is inactivated and absorbed on an adjuvant. Vaccine, properly tested for its immunising power, is only to be issued to use. Such testing is a complicated affair involving the use of larger number of cattle in sophisticated high security 'challenge stables'.

1700

1700

COMMUNITY HEALTH CELL

326, V Main, I Block

Koramangala

FOOT & MOUTH DISEASE VACCINE PROJECT
AT BRIAH, WAGHOLI :

The major objective is to produce Foot & Mouth Disease Vaccine of international quality. So as to achieve this, it is necessary to develop various primary and secondary systems of cell culture and establish large scale production facility of BHK cells in roller bottles, BHK cells in suspension and virus production on industrial scale in thousands of litres.

INFRA-STRUCTURAL FACILITIES AT
BAIF RESEARCH INSTITUTE FOR ANIMAL HEALTH,
WAGHOLI :

The institute houses the following Major Buildings :

Foot & Mouth Disease Vaccine Production
Laboratory, fully Air-conditioned.
30,000 sq.ft. (approx).

Service Block
12,000 sq.ft. (approx).

Small Animal House
Airconditioned - 12,000 sq.ft. (approx).

Serum Production Laboratory
5,000 sq.ft. (approx).

Experimental Animal House
Airconditioned - 8,000 sq.ft. (approx).

Bio-Medical Diagnostics Production
Laboratory - Airconditioned
6,000 sq.ft. (approx).

General Washery & Laundry Building
5,000 sq.ft. (approx).

Stores
8,000 sq.ft. (approx).

Engineering Workshop
4,000 sq.ft. (approx).

Innocuity Stables

High Security Vaccines Quality
Control Stables.

Experimental Stables for Cattle

Residential Colony for 40 Staff Members
families.

Whereas all the above mentioned facilities are expected to be completed by 1979~80, the following laboratories which form the Foot & Mouth Disease Vaccine research and production complex have become fully functional :

Independent Epidemiological Surveillance laboratory with Foot & Mouth Disease Virus typing facilities.

Cell Culture Seed Bank Laboratory.

Virus Culture Seed Bank Laboratory.

Viral Bio-chemical Research Laboratories.

Cell Culture Research & Production Laboratory.

Experimental Virus Fermentation Laboratory.

Tissue Culture Media Production Laboratory
on Industrial Scale.

Virus Fermentor Battery Laboratory capable
of producing 5000 litres of virus per
week, currently biggest of its kind in India.

Bio-engineering Laboratories for virus
inactivation and Vaccine Production.

The above laboratories are under negative pressure, fully air-conditioned with filter fitted air handling units at inlets and outlets. It has a built-in effluent treatment plant, and a number of innovative concepts such as 'aircraft type' double glass mountings, air column division barriers, special fan coil units to restrict inter-laboratory aerial contamination.

So as to ensure that the valuable material is not lost due to the power failures and also to safe-guard the quality of vaccines, the project has its own electrical power house which can produce 640 KW of electrical energy.

There are also exclusive facilities for water softening, filtration, chlorination and demineralisation.

Other utilities include Steam Boiler, Liquid Nitrogen Plant, Ice Making Plant, Cold Rooms, Chilled Water Unit, Superclean Steam Generator, Superclean Dry Air Compressor, Roller Bottle Drum Assemblies, Centralised voltage stabilisation system and a number of similar sophisticated equipment.

THE FMD VACCINE RESEARCH AND PRODUCTION LABORATORIES :

Built according to the latest modular concepts, the ultra-modern Vaccine Production Laboratories have cleverly blended architectural beauty with functional efficiency. With air handling features specially designed to suit virological research, the laboratories are fully air-conditioned and cover a carpet area of more than 30,000 sq.ft. housing laboratories, library, auditorium, cafeteria, administrative offices and sterile glass-ware processing sections.

EPIDEMIOLOGICAL SURVEILLANCE LABORATORIES (ESL)

In a vaccinated subjects, antibodies (a special protein) circulates in the body to trap microbes/viruses. Some of the invading agents are very clever. They take a different form and hoodwink the body protein and establish infection leading to failure of immunity.

This can only be avoided if, very similar to the police department a 'viral finger prints identification' section is established.

This can not only detect new types and subtypes of FMD Viruses but can also solve the riddle of immunity failures.

Emerging diseases could be identified and immediate strategy could be planned.

This is precisely the tasks handled at ESL. Unique of its kind in the country, the laboratories have its exclusive ventilation systems and complex sterility maintenance organisation.

Here challenges of tomorrow are met today.

CELL CULTURE LABORATORIES:

Cell culture laboratories have a collection of the precious cell culture lines, used the world over, in the virus research. Continuous cytological research and storage under liquid nitrogen ensures excellence of quality of the cells which is, in fact, our main raw material for virus production.

VIRUS LABORATORIES:

Miniature fermentation process and roller bottle assemblies, which mimic the exacting biological requirement for high quality virus production, are some of the many sophisticated techniques followed in virus laboratories. The organisation of special cubicles with built in air-filtration and germicidal lamp system ensures optimal conditions for virus manipulations.

THE BIOCHEMISTRY LABORATORY:

The Biochemistry laboratory is a 'watch dog' on quality of raw materials, as well as finished products. Apart from developing critical raw materials and thus helping the country in saving valuable foreign exchange through import substitution, the research efforts are geared to make available newer weapons to fight microbial and viral diseases of animals.

BATTERY OF FERMENTORS:

Designed by Danish Scientist and manufactured in Sweden our 'battery' of the fermentors is presently the biggest single assembly in the country, capable of producing, on industrial scale, more than 2000 litres of high quality virus per week.

The balancing equipment, facilitating sterile liquid transfer and processing is indeed an eloquent example of excellence in bio-engineering.

RESEARCH AND DEVELOPMENT:

As a good crop depends, in addition to a number of other inputs, a good seed, an efficient vaccine depends on a good seed virus. It should be pure and must have inherent capacity to produce effective proteins in the body to fight infection. Both these characters need critical research.

Purification through cleaning, selection through clonal sieving and genetical characterisation of clonal virus population to be used as 'seed virus' are therefore one of the most important activities undertaken in our Research & Development Department.

THE MAN-POWER MANAGEMENT:

The project as the one taken up by BAIF get normally bogged down due to lack of man material competent to handle the complex problems. Realising these facts, BAIF has prepared a 'Man-Power' plan which functions on the following principles:

Multi-disciplinary recruitment programme with emphasis on 'in-service', skills oriented training.

Long term planning of man-power needs with perspective planning of each individual with clear programme of his placement and promotions.

As the man behind the project makes or mars the project the personnel are carefully selected even before they have passed their final examinations. After joining the organisation, a six month skills-oriented training programme is chalked out for every individual. As the need may be, candidates are sent abroad for training. Thanks to the help of a number of foreign technical and management experts, a unique exchange programme is

designed, under the auspicious of which foreign experts visit BAIF laboratories and associate themselves in carrying out day-to-day tasks shoulder-to-shoulder with BAIF's staff.

The BAIF counterpart, in due course of time, is then deputed to work with the foreign experts in laboratories abroad.

This strategy has paid rich dividends in preparing young but highly efficient personnel who can take up the complex challenges of cleverly transforming the sophisticated technology to suit the needs of socio-economically weaker sections of our society.

Technical and Managerial personnel exceed more than three hundred. The skills inventory enclosed separately shows clearly that BAIF has one of the best multidisciplinary talent available in the country. In fact, it is this professionalism blended with selfless leadership which has given the real strength to the Organisation.

According to a paper presented on 4th April 1975 in New Delhi by a well-known philanthropist dedicated to work for the rural development:

" A pre-requisite to rural economic development is the adoption of a suitable production technology which is labour intensive. Unfortunately, most of the technologies introduced so far, for increasing agricultural production in rural areas have been capital intensive, ignoring the vast unemployed man-power resources living ~~idle~~ in our villages. Consequently, the benefits of all the programmes and schemes so far introduced in rural areas have accrued mostly to the affluent section of the rural community. This has widened the gulf between the rich and the poor.

Fortunately, we have found in Bharatiya Agro-Industries Foundation at Uruli-Kanchan, near Poona in Maharashtra an organisation which had developed appropriate rural development technology including those of cross-breeding of cows, dry farming and fodder production. It has presently one of the finest stocks of pure bred Holstein and Jersey breeds of cattle. A semen bank is being built up there. A Foot & Mouth Disease Vaccine Production Complex is already functioning. More than 90 extension centres are engaged in transferring this technology to the rural people".

On Cattle Development he says:

"I would like to share with you some of our experiences with the introduction of cross-bred cow into the economy of the rural people both land owning and landless. There are many prejudices against the introduction of cross-bred cows into rural areas and many of these are based on sentiments, wrong information reluctance of even refusal to be convinced. But the rural poverty and the consequent social disparities have reached almost an explosive stage and we cannot afford to neglect any fruitful avenue for uplift of the rural poor any longer....."

SHRI MANIBHAI DESAI ON BAIF'S STRATEGY OF SERVICE
TO THE POOR FARMER THROUGH THE DEVELOPMENT OF
CATTLE, AGRICULTURE AND IRRIGATION.

"You are probably aware that for the last twentyfive years, since I was deputed by Gandhiji to the backward village Uruli-Kanchan to work in his Nature Cure Ashram, I have been continuously working in a drought-stricken scarcity area. The vast majority of the population of this rural area consists of economically deprived, backward farmers leading a very precarious life. The inspiration of our social work culminating in organising the Bharatiya Agro-Industries Foundation is as much due to Gandhiji as to these poor, marginal farmers, who continue to lead a miserable existence in spite of their having become free citizens of a new democracy. It has, therefore, become a cardinal principle of our policy that our programmes must be directed to the servize of the poor farmer and help in a concrete way to improve the socio-economic status of his family. We have been stressing this point, because we have found that several programmes for the devlopment of Cattle or Agriculture or Irrigation are so planned that the small farmer has not been able at all to avail himself of their economic benefits".

Shri Manibhai Desai

MAN-POWER SKILLS INVENTORY

MAN-POWER SKILLS INVENTORY

I. ANIMAL SCIENCES :

1. D.Sc.	1
2. Ph.D.	9
3. M.R.C.V.S/F.R.C.V.S.	1
4. M.V.Sc.	9
5. B.V.Sc. & A.H.	156
6. G.B.V.C.	1

II. AGRICULTURAL SCIENCES :

1. M.Sc.	15
2. B.Sc.	65
3. B.R.S.	12

III. GENERAL SCIENCES :

1. D.Sc.	1
2. Ph.D.	1
3. M.Sc.	5
4. B.Sc.	13

IV. ENGINEERING

1. B.Tech,	1
2. D.E.	4
3. Dip. Engg.	4

V. COMMERCE & LAW :

1. C.A.	1
2. C.A./L.L.B.	1
3. A.I.C.W.A./A.C.I.S.(LOND)	1
4. M.A.	1
5. B.A.(L.L.B.)	3

VI. MANAGEMENT :

1. M.B.A.	4
2. P.M.A.	2

TOTAL : 311

SENIOR MANAGEMENT TEAM

1. Dr. Manibhai Desai	Director
2. Dr. D.S. Gorhe D.Sc. (Paris)	Chief Executive
3. Mr. M.P. Marathe B.Com. F.C.A.	Finance Manager
4. Mr. N.G. Hegde M.Sc. (Agri.), P.M.A.	Executive Secretary
5. Mr. K.A. Chaukar B.A., M.B.A.	Executive Secretary
6. Dr. N.S. Datt Ph.D. (Cantab.)	Programme Coordinator
7. Dr. M.R. Marathe G.B.V.C.	Programme Coordinator
8. Mr. N.S. Nagori B.E. (Agri.), P.M.A.	Programme Coordinator
9. Dr. D. V. Rangnekar H.V.Sc. Ph.D.	Programme Coordinator
10. Mr. N.B. Shah B.Com., A.C.M.A. A.C.I.S. (Lond.), I.I.C.W.A.	Div. Finance Manager

THE BHARATIYA AGRO-INDUSTRIES FOUNDATION

FOOT & MOUTH DISEASE VACCINE PROJECT
POONA

Project Holder	Bharatiya Agro-Industries Foundation, Uruli-Kanchan, District: Poona.
Agency from Denmark	Danish International Development Agency(DANIDA), Government of Denmark.
Agency from India	People's Action for Development(INDIA) Ministry of Agriculture & Irrigation, Government of India.

CHRONOLOGY OF EVENTS

PROJECT CONCEPTION	1972
PROJECT PLANNING	1973
PROJECT APPROVAL BY DANIDA & PAD(I)	MAR. 1974
CONSTRUCTION COMMENCES	APR. 1974
50% BUILDING WORKS COMPLETED	DEC. 1975
PROCESS DEVELOPMENT & STANDARDIZATION LAB. STARTS FUNCTIONING.	FEB. 1976
IMPORTED EQUIPMENT RECEIVED AT SITE	OCT. 1976
PRODUCTION LABORATORY & UTILITIES COMPLETED	JUN. 1977
PILOT SCALE VACCINE PRODUCTION STARTS	AUG. 1977
COMMENCEMENT OF LARGE SCALE(FERMENTOR) VACCINE PRODUCTION.	JAN. 1978.



